

# MEDICAL EMERGENCY EXPO: A COMMUNICATION BLUEPRINT FOR PUBLIC PREPAREDNESS IN INDONESIA

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## ABSTRACT

Based on BNPB data in 2024, there were 3,472 disasters in Indonesia, with the highest incidence being hydrometeorological disasters, which was 99.34% and geological disasters, 0.66% of the hydrometeorological disasters that occurred were floods and forest fires, in addition, there were 15 earthquakes and eight volcanic eruptions. In addition to natural disasters, emergencies often happen and claim many lives. According to data from the National Police Traffic Corps, throughout 2023, there were more than 150,000 cases of traffic accidents throughout Indonesia, with the death toll reaching more than 25,000 people. Method: This exhibition was held for 1 day by raising various topics related to disasters and emergencies in Indonesia. This activity not only invited the entire academic community of the Faculty of Medicine, Duta Wacana Christian University, but was also open to the public. Around 300 people attended this event, including UKDW students from medicine, other faculties, and the general public. All participants showed enthusiasm for this expo, from listening to the education provided to watching various theatrical performances and doing (hands-on) the mannequins or tools provided. The part organized by our tutorial group ran smoothly overall. All visitors showed enthusiasm in organizing the activity and participated in the entire series of activities.

**Keywords:** communication strategy, disaster mitigation, emergency, medical, exhibition

## ABSTRAK

Berdasarkan data BNPB di tahun 2024 terjadi 3.472 bencana di Indonesia dengan kejadian tertinggi adalah bencana hidrometeorologi yaitu sebesar 99,34% dan bencana geologi 0,66% bencana hidrometeorologi yang terjadi yaitu banjir dan kebakaran hutan, selain itu terjadi 15 kejadian gempa bumi dan 8 kejadian erupsi gunung berapi. Selain bencana alam, kondisi kegawatdaruratan cukup sering terjadi dan memakan banyak korban jiwa. Menurut data dari Korlantas Polri, sepanjang tahun 2023 terjadi lebih dari 150.000 kasus kecelakaan lalu lintas di seluruh Indonesia, dengan jumlah korban meninggal dunia mencapai lebih dari 25.000 jiwa. Pameran ini dilakukan selama 1 hari dengan mengangkat berbagai topik terkait kebencanaan dan kegawatdaruratan yang terjadi di Indonesia. Kegiatan ini tidak hanya mengundang seluruh civitas akademik Fakultas Kedokteran Universitas Kristen Duta Wacana namun juga terbuka untuk umum Sekitar 300 orang hadir ke acara ini yang terdiri dari mahasiswa UKDW baik dari kedokteran dan fakultas lainnya serta masyarakat umum. Keseluruhan peserta yang hadir menunjukkan antusiasme terhadap expo ini mulai dari mendengarkan edukasi yang diberikan, menonton berbagai penampilan teaterikal serta melakukan (hands-on) untuk manekin atau alat yang disediakan. terutama bagian yang diselenggarakan oleh kelompok tutorial kami berjalan dengan lancar secara keseluruhan. Seluruh pengunjung menunjukkan antusias dalam penyelenggaraan kegiatan dan mengikuti seluruh rangkaian kegiatan.

**Kata kunci:** strategi komunikasi, mitigasi bencana, kegawatdaruratan, kedokteran, pameran

## INTRODUCTION

According to Indonesian Law No. 24 of 2007, a disaster is defined as an event or series of events that threatens and disrupts community life, caused by natural, non-natural, or human factors, resulting in human casualties, environmental damage, property loss, and psychological impacts<sup>1</sup>. Natural disasters are those caused by natural phenomena, including earthquakes, tsunamis, volcanic eruptions, floods, droughts, typhoons, and landslides. As the world's largest archipelagic state, Indonesia is situated at the confluence of three major tectonic plates the Australian, Pacific, and Eurasian plates. This geographic positioning places the nation at high risk for both tectonic and volcanic earthquakes, as well as subsequent tsunamis. Furthermore, Indonesia's archipelagic geography makes it vulnerable to hydrometeorological disasters such as floods, forest fires, and droughts. These risks are exacerbated by global climate change, which contributes to rising sea levels which a critical issue given that a significant portion of Indonesia's population resides in coastal areas. Vulnerable populations, particularly the poor, are most severely affected, underscoring the urgent need for adaptive measures to protect public health and mitigate disaster impacts<sup>2,3</sup>.

Data from the National Disaster Management Agency (BNPB) in 2024 revealed 3,472 disaster events in Indonesia, of which 99.34% were hydrometeorological and 0.66% were geological. These events resulted in 540 deaths, 63 missing persons, and the displacement of over 8 million people, excluding extensive damage to homes and infrastructure. As of May 2025, an additional 1,162 disasters have occurred, primarily floods,



affecting 3 million people, causing 211 deaths, and damaging approximately 18,000 homes and public facilities<sup>4</sup>.

A primary challenge in Indonesia's disaster response is the inadequacy of disaster management, particularly the lack of focus on mitigation and public education. Although disaster management is regulated by Law No. 24 of 2007, which outlines a framework for responding to natural and human-made disasters, and Law No. 32 of 2009, which addresses climate change and disaster risk reduction, implementation remains a challenge. The Ministry of Health, under Law No. 17 of 2023, is responsible for providing continuous health services during disasters. However, effective disaster management must extend beyond response to include pre-disaster preparedness. Enhancing education at the individual and family levels is crucial<sup>5</sup>. Research conducted in Cimahi demonstrates that socialization in schools and the use of accessible media can significantly improve preparedness behaviors<sup>6</sup>.

Beyond natural disasters, medical emergencies can escalate into disasters when they affect a large population or overwhelm existing response capacities. A professional and holistic medical practitioner must possess the knowledge to educate the public on prevention and initial management of common emergencies, such as traffic accidents, assault-related injuries, drowning, burns, and hypothermia. Traffic accidents remain a major public health issue in Indonesia. Data from the National Police Traffic Corps for 2023 reported over 150,000 traffic accidents, leading to more than 25,000 fatalities, averaging 68 deaths per day. The most affected demographic is the productive age group of adolescents and young adults<sup>7,8</sup>.

Disseminating knowledge about emergency and disaster preparedness through education and training is a strategic, long-term investment. Activities such as public awareness campaigns, simulations, first aid training, and accessible informational media can significantly enhance public understanding and resilience<sup>9,10</sup>. A well-prepared society can effectively mitigate the adverse impacts of emergencies, fostering a safer and more resilient environment.

## METHODS

This community service activity was executed through a project-based learning model involving medical students. Students were divided into 10 tutorial groups, each tasked with selecting a topic related to a medical emergency or disaster. The groups were responsible for designing an educational booth and choosing a method for conveying information to the public. Each group was supervised by a faculty mentor over a five-week preparation period. The "Medical Emergency and Disaster Expo" was held on May 2<sup>nd</sup>, 2025, from 09:00 to 15:00 at the Faculty of Medicine, Duta Wacana Christian University. Topics covered by the student groups included waste management emergencies, fire safety and burn care, cardiac arrest, first aid for traffic accidents, and mountaineering-related hypothermia. The event was open to the entire academic community of the university as well as the general public.

## RESULTS AND DISCUSSION

The expo was held on Friday, May 2, 2025, in a strategic open area of the Logos Building at the Faculty of Medicine, UKDW, ensuring high visibility and visitor traffic. The event commenced with an opening ceremony, where the purpose of the expo was outlined. Each booth then initiated its activities, with many incorporating brief educational sessions and role-playing scenarios to engage visitors. One booth, themed "Yogyakarta Waste Emergency: Realizing Green Living at UKDW," collaborated with the Center for Environmental Control for the Java Region (**Figure 1**). This group identified pressing local issues, such as unmanaged leaf litter and inadequate temporary disposal facilities. They proposed solutions like composting organic waste, producing eco-enzymes, and promoting a "green living" lifestyle among the academic community and the public.



**Figure 1.** UKDW medical students during an educational mentoring session with the Center for Environmental Control for the Java Region

Another booth focused on first aid for traffic accidents, with the sub-theme "Save a Life: Recognize, Prevent, and Respond to Traffic Accidents." Visitors were invited to practice essential skills such as applying pressure bandages and splinting (**Figure 2**). The booth successfully used interactive media, including booklets, banners, educational videos, and live simulations, to teach first aid for extremity injuries. Participants demonstrated improved understanding and practical skills in applying splints, using a neck collar, and evacuating victims with a stretcher, as confirmed by direct practical evaluation.



**Figure 2.** Visitors participating in hands-on training for pressure bandage and splint application

Sudden cardiac arrest was another critical topic addressed. Sudden cardiac arrest is a medical emergency characterized by the abrupt loss of heart function, which halts oxygen supply to vital organs. Brain cell death begins within four minutes, and irreversible organ damage occurs within ten minutes. As a leading cause of death worldwide, with over 7 million estimated annual fatalities, immediate intervention is critical. At this booth, visitors were taught the initial management for an unconscious person without a pulse or breathing: cardiopulmonary resuscitation (CPR) (**Figure 3**)<sup>11</sup>.



**Figure 3.** A visitor practices chest compressions on a CPR mannequin

Choking was presented as a common household emergency. It occurs when a foreign object obstructs the upper airway, blocking airflow and potentially leading to hypoxia, loss of consciousness, and death if not treated promptly. The American Academy of Pediatrics identifies choking as a leading cause of unintentional injury and death in children under three<sup>12</sup>. The CDC reported over 5,000 choking-related deaths in the US in 2020, with the highest proportion among adults over 75<sup>13</sup>. Visitors were taught to recognize the signs of choking and perform first aid maneuvers such as back blows, the Heimlich maneuver (abdominal thrusts), and chest thrusts, with demonstrations on infant mannequins (**Figure 4**)<sup>14</sup>.



**Figure 4.** A student instructs a visitor on the back blow technique for a choking infant

With the rising popularity of mountain climbing in Indonesia, hypothermia was addressed as a significant risk, particularly for inexperienced hikers. Recent fatalities on Mount Carstensz due to hypothermia highlight the life-threatening nature of this condition. This booth used a video demonstration to educate visitors on first aid for hypothermia, including moving the victim to a dry, warm place, using emergency blankets or sleeping bags, monitoring their condition, and performing CPR if necessary<sup>15-17</sup>.



**Figure 5.** A screenshot from an educational video demonstrating first aid for hypothermia during a hike.

Fire safety was covered as a common non-natural disaster. The booth focused on fires resulting from gas leaks in homes, offices, and schools. It emphasized that many people are unfamiliar with using a fire extinguisher (APAR) or alternative methods. The correct initial response—shutting off electricity and the gas source and using a fire extinguisher rather than water—was demonstrated. Students, assisted by the UKDW campus fire safety team, conducted a live simulation of extinguishing a fire (**Figure 6**)<sup>18-20</sup>.



**Figure 6.** Hands-on training for extinguishing a fire using a fire extinguisher

Finally, in the context of natural disasters, a group presented "Lindu di Logos" (Earthquake at Logos), focusing on earthquake mitigation. A key feature was a theatrical drama depicting a family's experience during an earthquake. The performance highlighted crucial preparedness actions: what to do before an earthquake, how to manage panic during the event, the importance of taking cover under sturdy furniture, and strategies for coping with post-traumatic stress. The compelling narrative effectively educated the audience on creating individual early warning systems and the importance of preparedness<sup>21-25</sup>. The theatrical performance was well-received, drawing an enthusiastic response from visitors.

## CONCLUSION

The Medical Emergency and Disaster Expo was successfully executed, attracting approximately 300 participants from within and outside the university. The high level of engagement and enthusiasm demonstrated the effectiveness of the interactive and multifaceted approach, which included educational talks, theatrical performances, and hands-on skill stations.

The event's success, reflected in the diverse participation from various faculties and institutions, confirms that disaster preparedness is a universal and relevant issue. The interactive design of the educational booths created a communicative and engaging learning environment. More than just a one-time event, this expo serves as a model for how students can actively contribute to public health promotion through innovative methods that appeal to both the intellectual and emotional dimensions of the audience. This underscores the potential of project-based learning as an integral component of medical education, particularly for developing skills in disaster medicine and enhancing the soft skills of future healthcare professionals.

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